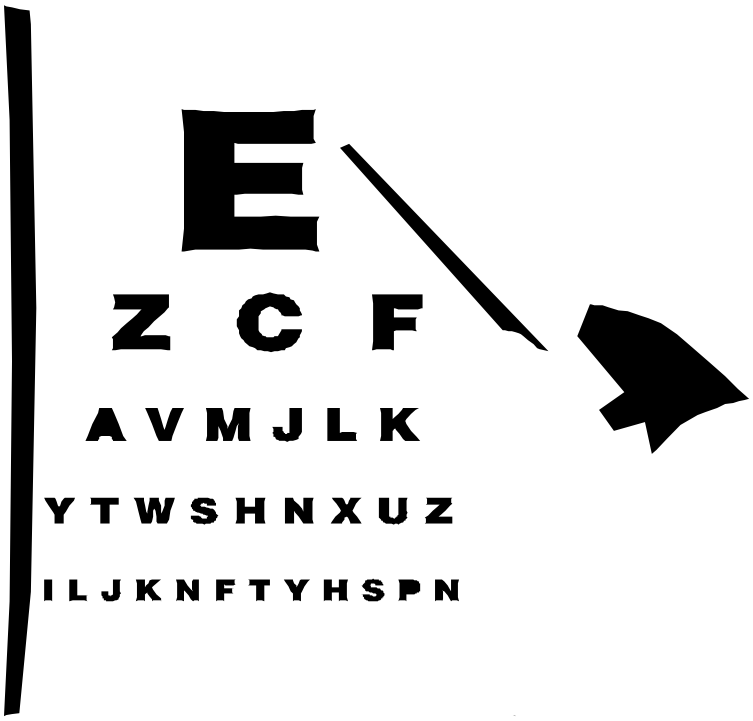

GUIDELINES FOR

VISION SCREENING

SEPTEMBER 2004

ACKNOWLEDGEMENTS

This manual was reviewed and revised based on valuable input from the following individuals:

Barbara Hotop, RN, Perry County Health Department
Martha Dahler, RN, Odessa R-7
Jan Browning, RN, District Nurse Consultant, Missouri DHSS
Lisa Jordan, RN, Knob Noster RVIII
LaVonda Jones, LPN, Moniteau RVI
Kim Viviano, RN, Northwest R-I

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I. Introduction

A. Purpose

The purpose of a screening program is to detect those individuals with a suspected deviation that requires further examination.

B. Objective

The objective of the vision screening program is to identify individuals with possible visual defects at the earliest possible stage in order to refer for diagnosis and treatment, if required.

C. Characteristics of Screening Programs

Screening is a brief or limited evaluation of a group of individuals presumed to be normal. The value of early detection of a problem must be weighed against the time and human resources required to conduct the screening. The value of the screening process depends on how well the program is carried out, and how the findings are used. Results must be communicated, and follow-up on referrals for those "at risk" continued until the problem is resolved in some manner. Screening program results must be evaluated in terms of:

- validity - ability to identify those who have the condition;
- reliability - consistency of results of screening process;
- yield - number of persons identified;
- cost - personnel and equipment;
- acceptance - informed parents agree to value of screening; and
- follow-up - communicating results to parents who respond with appropriate actions to get necessary diagnosis and treatment, if indicated.

II. Screening Schedule and Protocol

Detection of visual problems at any age requires obtaining a detailed history, with particular attention to indicators for vision problems, observation for signs and symptoms, age-appropriate functional assessment and visual acuity screening according to the individual's developmental level (see Vision Screening Protocol).

A recommended schedule for vision screening includes:

- Functional assessments at any visit - Birth through 2 years of age;
- Visual acuity beginning at age 3 years, and yearly through age 7 (or grade 1) and Pre-Kindergarten through 1st grade, then at least every two years thereafter.

In schools, recommendations for <u>priority</u> in screening are:

- All students new to a school system (PreK, K and/or 1st grade, transfers);
- All students referred by teacher, parent, or student his/herself;
- Students in special education, according to district screening plan; and
- High risk - repeating a grade, or previous vision screening failure without professional evaluation; and
- As time and resources permit, screening the following additional grades – 3, 5, 7, 9, and 11.

VISION SCREENING PROTOCOL

TEST	3 YEARS AND OLDER	AGE BIRTH TO 3 YEARS
Binocularity/Stereoscopic Vision (Random Dot E or other tests)	**x (once between 3-5 years of age)**	
Distance Visual Acuity (Snellen E/letters)	**x**	
Other* **HOTV** **Lighthouse** **Broken Wheel**	**as indicated by developmental level**	
Near Point Acuity	**as indicated**	
History (high risk indicators)		**x**
Observation (signs and symptoms)		**x**
Functional Assessments		
Red Reflex		**x**
Blink Reflex		**x**
Pupillary Response		**x**
Corneal Light Reflex		**x**
Tracking		**x**

***Are equivalent to Snellen E and may provide a developmentally appropriate test for a gross assessment of distance acuity.**

III. Screening Vision in School-Aged Children

Screening programs to detect possible vision problems are traditional in school health programs in order to eliminate a possible barrier to learning. Schools develop screening schedules based on a variety of situations, i.e., board policy, special education plans, tradition, etc. Individual children are often referred for vision screening based on signs and symptoms observed by parents and teachers. It is helpful to share the "ABC Checklist for Vision" or the "Signs and Symptoms" with school staff or parents. They may also be used as referral forms or to obtain history. These tools may help others in making observations and referrals for possible vision problems (see Resources, Appendix C).

A. Visual Acuity

Visual acuity tests should be chosen according to the child's developmental level. The recommended standard screening test is the Snellen E or alphabet.

Other tests, equivalent to the Snellen E, may be used for pre-language students, students who are developmentally delayed, or difficult to test. Some developmentally appropriate tests include:

- HOTV
- Lighthouse symbols (chart or flashcard)
- Broken wheel

Visual acuity refers to the sharpness of one's eyesight. The size of all letters in a row on an eye chart is the same. The size of all the letters in a row is smaller than the row above. Beside each row is a fraction. The top half of the fraction (numerator) stands for how many feet the person is standing from the chart (usually 20 feet). The bottom half of the fraction (numerator) shows how far away a person with normal visual acuity can stand from the chart and still read the symbol. The 20/20 line is the standard for normal vision. A person with normal vision should be able to read the 20/20 line if the person stands 20 feet away. A screening result of 20/100 means that the smallest line the person can read at 20 feet could be read by a person with normal vision at 100 feet.

The numerator of the visual acuity fraction can change. If the person is unable to read any of the letters on a chart at 20 feet, have the person walk toward the chart and stop when he/she can read the largest letter on the chart. Measure the distance from the person to the chart. If the person can read the 20/100 letter at 5 feet, record this as a visual acuity of 5/100.

Numerator - **distance** from the subject to the chart, e.g., 20 feet
Denominator - **size of the symbol** the person can see at 20 feet
EXAMPLE - 20/40 - at 20 feet, the eye sees at a 20 foot distance what a normal eye sees at 40 feet.

Preparation

It is important to prepare the child for the screening. For the preschool child, the child's caregiver can be a valuable teacher by preparing the child at home prior to screening. The adult can practice with flash cards or an E card to prepare the child to match or identify what he/she sees.

Kindergarten or older children can be instructed in small groups of 3 to 5 children. The volunteer or nurse screener can instruct the children to play the "E game." This is done by using a card with a block E and the Snellen chart, so that the child learns to associate the E symbol with the wall chart. The E is demonstrated as a table. The children may use their hands, fingers or arms to show the direction of the "legs." The E is shown to them in all positions until it is felt they understand the concept. Some find it helpful to attach pictures to each side of the chart so the child may name the picture toward which the legs of the E are pointing. An E card or wooden cutout in the shape of an E may be used by the child to match the position of the E on the chart. Children who know directions may respond "right, left, up, or down" to indicate the direction the E is pointing.

A response board is available for the HOTV test that allows the child to point to the symbol that matches the one being shown. The Lighthouse symbol test has a similar response board.

Facilities

The room should be at least 5 foot longer than the test distance, well lighted, without glare, distracting windows, or patterns on the wall.

General procedure for all distance acuity screening

Measure distance (10 or 20 feet) from the chart and place tape on the floor. The chart should be placed on the wall, with 20/30 line level with student's eyes. The student may either stand or sit during the exam. The younger child may do better with a parent in attendance.

The date of the last professional eye exam and doctor's name should be recorded. It is not necessary to screen students who wear glasses, as they have a known deficit. If, however, the student wearing glasses is screened, and fails the screening, it may be necessary to check with the parent or doctor to determine if this is the best level of correction possible.

Specific Screening Procedures

1. Distance Visual Acuity

a. Snellen E or letters

Ages/Grade: E Chart - use with preschool, kindergarten through 2nd grade, older children and students in special education who are unable to read the letters. Snellen letter charts may be used with any student who can name letters.

Description: Visual acuity is checked at 10 or 20 feet, depending on the chart used. Symbols are presented in a linear fashion.

Equipment: Snellen E/letters chart, occluder.

Procedure: Begin the screening procedure testing the right eye while occluding the left eye, then the left eye, occluding the right eye. Ensure the student keeps both eyes open when an occluder is used and that no pressure is placed on the eye that could cause blurring of vision. A paper cup works well as an occluder.

Uncover a complete line at a time since the "crowding effect" will pick up more students with amblyopia than if symbols are presented a line at a time. However, some students (especially preschool) may be confused by the entire line and need to be shown isolated letters. It should be recorded that the screening was done with isolated letters.

When screening very young children, or screening a child for the first time, it may be helpful to begin screening with both eyes first, starting with the line above the expected acuity. Once a student knows the procedure, it is not necessary to screen the vision for both eyes. If unable to get acuity for a single eye, but the student will respond for both eyes, note this on the screening record.

With students suspected of having low vision, start with the largest symbol on the chart. Work down the center of the chart until one symbol is missed. Test that line and continue down the chart as long as the student can identify over half the symbols on the line. If the student fails a line, repeat it, giving the symbols in reverse. If the student fails again, the acuity is recorded as the next higher line. It is not necessary to screen beyond the 20/20 line.

b. HOTV Chart

Ages/grades: 2-5 years (developmental age), non-verbal, difficult-to-test students (unable to perform on a Snellen E screening test)

Description: Visual acuity is checked at a distance of 10 feet, using the HOTV symbols. The student need not know the symbols, but must be able to match the indicated symbols on a wall chart with those on a response card.

Equipment: 10 foot HOTV Chart
Student Response Panel
Flashcards
Table and chair
Occluder

Procedure: The student should be standing or sitting at a table with the card in front of him, with eyes at a 10 foot distance from the chart. The student should be taught to match the symbol on his response card as it is being pointed to on the chart, or shown with a flashcard by the screener. Training is done by holding the flashcards one at a time, increasing the distance from the student while the student is matching them on his response card.

Begin screening for both eyes by pointing to the largest symbol on the HOTV wall chart; the student should point to the corresponding symbol on his response panel. Start with the top line and continue downward, showing one symbol per line until the student misses. Check the rest of that line, if the student fails over half the symbols, go to the line above. To receive credit for a line, the student must correctly match over half the symbols on a line. The number recorded as the visual acuity is the smallest line on which the student can read over half the symbols correctly.

c. Lighthouse Flashcard Test

Ages/Grades: 3 years and older, non-verbal, difficult-to-test students.

Description: Visual acuity is checked at a distance of 10 feet using the symbols of an apple, house and umbrella. The student must name these symbols or be able to match the symbols with the symbol shown on a card held by the screener.

Equipment: Lighthouse Flashcards
Student response card (for matching procedure)
Table and chair
Occluder

Procedure: Practice with the student and determine what the symbols mean to them. The house may be a "doll house," the apple looks like a "heart," or the umbrella may be a "tree."

The examiner shows the "200" cards at 5 feet. If there is hesitation or inaccuracy, the test should be repeated at 4 or 3 feet (or closer) until there are three consecutive accurate responses. This will give an accurate acuity in the child with subnormal vision whose acuity is 5/200 or less. For children who give rapid responses at 5 feet, the screener may step back to 10 feet for the next part of the test. At 10 feet, the "200" cards may be shown to confirm the response. If there is hesitation at this level, the test should be repeated within the 10 to 5 foot range until there are three consecutive accurate responses. This will give accurate acuity for students with subnormal vision between 10/200 and 5/200. At 10 feet, if the response is rapid, "100," "50," or "40" cards may be shown, or the screener may skip to the "20" card or smaller. All cards need not be shown at any given level provided the responses are obviously correct. The test can be completed at 10 feet when there is limited space, because the "10" cards identified at 10 feet produce an acuity comparable to 20/20 vision.

The test may be done at the conventional 20-foot range. However, in the very young and difficult-to-test student, interest is higher when the screener and cards are at 10 feet.

When the student has identified the smallest possible symbol at the testing distance, the examiner may step back 1 foot and show the same cards in a different sequence. If the responses are hesitant or inaccurate, the end point has been satisfactorily determined.

The procedure can be conducted as a matching task by placing copies of the three symbols on the table in front of the student who can point to the symbol that matches the card held by the screener.

Repeat the procedure for the right and left eye, occluding the other. Convert all scores to 20-foot notations.

Calculate scores by converting the numerator to 20 and multiplying the denominator by the same number as needed to convert, i.e.:

$$5/100 = \frac{5 \times 4}{100 \times 4} = 20/400$$

d. Broken Wheel

Ages/grades: 2-5 years (developmental age) non-verbal, difficult to test, physically challenged, etc.

Description: Acuity is checked at a distance of 10 feet, but can be administered at closer range, as needed, with the appropriate calculation of acuity (see Lighthouse). Test is administered binocularly (with both eyes). If student is capable, then eyes should be screened individually.

Equipment: Set of Broken Wheel cards (one with "broken wheel" has a B on back).

Procedure: With this population, it is recommended that a pretest be administered. Show the student the two cards with the largest symbols (20/120) at about 20 inches. Hold the cards about 12 inches apart, at eye level. Say, "Here are two cars. One has wheels that are broken, the other has wheels that are okay, or not broken" (pointing to the appropriate card while describing them). Then say, "I want you to point (or look) at the car with the broken wheels." If the student points correctly, shuffle the cards behind your back, then present them again and ask the student to make a choice. After two to three trials, the screener can determine if the student grasps the concept. If unsure, attempt to get four of four correct responses before proceeding.

If the student appears capable of responding to the test, move to a distance of 10 feet, allowing student to use both eyes to look at 20/100 cards. Instruct the student to look at both cards carefully. This population of children may be impulsive in responding and not look at both cards before choosing. The screener can increase the reliability of the results by requiring the student to slow down and look at both cards before choosing.

At least two trials at this distance should be provided to assure the screener that the student can choose correctly at 10 feet. If necessary, go to four full trials if unsure of responses. If the binocular vision is less than 20/100, repeat this procedure at 5 feet, or at closer distances if necessary.

To determine visual acuity, the screener may use cards at any level of acuity (20/20 to 20/100), in whatever sequence is determined clinically necessary. For efficiency, it is recommended that the screener present the highest acuity level binocularly (20/20), and then decrease accordingly (20/30, 20/40) if necessary.
The student must give four of four correct responses in order to pass the screening at any level of acuity.
The binocular vision is recorded. The test is repeated monocularly, if possible, and recorded.

The student's score should be recorded for both screening and re-screening. Recommended standards for distance visual acuity are at least:

Pass:	Ages 3-4 years	20/40 in each eye
	Ages 5-6 years	20/30 in each eye
	Age 7 years +	20/20 in each eye

No more than one line difference between both eyes even if the scores are within normal limits.

Fail:	If score for either eye is:	
	Ages 3-4 years	20/50 or worse
	Ages 5-6 years	20/40 or worse
	Age 7 years +	20/30 or worse

OR
If there is a two line or more difference between eyes, e.g., 20/20 (right) - 20/40 (left).

Local referral criteria may be different. It is recommended that local eye care professionals be consulted regarding their recommended referral criteria. If such consultation is not available, the above criteria should be used.

Considerations for Special Populations

The Snellen E, HOTV and Lighthouse tests can all be used if the student can "match" objects. The Broken Wheel test requires the student to recognize a "broken wheel" on a car. One picture of the car has solid wheels, and one that looks like a "c." This does not require matching, or interpretation of direction. Time spent in preparation usually results in increased ability to test, and decreased time spent in obtaining the student's visual acuity score.

Naming the symbols or matching objects should be practiced with difficult-to-test students in their classroom before the screening. For some students with physical handicaps, it may be useful to reproduce the response card, cut it into four sections and space them out to allow more gross movements when indicating the matching symbol. For the Broken Wheel test, the response can be finger

pointing, hand pointing, or looking toward the appropriate card. The student could be given a pen light and asked to use it to point to the car with the "broken wheels."

When screening distance vision in infants and toddlers or students with severe developmental delays, screeners will need to do functional assessments of vision. A comprehensive history related to vision should be obtained for very young children with suspected vision problems (see Section IV). It is also helpful to have parents review the Signs and Symptoms of Eye Problems (see Resources, Appendix C).

2. Near Point Acuity

Ages/Grades:	3 years and older.
Purpose:	To determine near visual acuity.
Description:	Visual acuity is checked at 13-16 inches, depending on the chart used, with letters or symbols presented in a linear fashion.
Equipment:	Near point visual acuity eye charts (Snellen E/letters, Sloan letter chart, HOTV, Lighthouse). Occluder
Procedure:	Begin testing with both eyes, starting with the 20/40 line. With students suspected of having low vision, start with the largest symbol on the chart. To receive credit for a line, the student must correctly read more than half the symbols on the line. It is not necessary to test beyond the 20/20 line. The number recorded as the visual acuity on the screening record is the smallest line of symbols on which the student read more than half the symbols correctly. The right eye is screened with the left eye occluded, then the left eye with the right eye occluded. The same screening and recording format is used.
Pass:	Acuity is 20/30 or better in each eye.
Fail:	Acuity is 20/40 or worse in one or both eyes.

Considerations for Screening Special Populations:

If the person screened does not know the alphabet or seems unduly confused, use the Snellen E test or one of the near point picture tests. In young children, accommodative powers are so great that even a child who has difficulty reading for long periods will be able to adapt for the time necessary to take the test. Therefore, the National Society to Prevent Blindness does not recommend its routine use in the preschool period.

B. Binocularity/Stereoscopic Vision

Ages:	3 years and older (to be performed at least once between 3 and 5 years of age).
Purpose:	To identify amblyopia or "lazy eye" and eye muscle disorder.
Description:	Both eyes must work together to achieve binocularity.
Equipment:	Random dot E stereotest or other test for stereopsis.
Procedure:	Place polarized glasses on the child (do not remove prescription glasses, but place polarized glasses over them). Show the E training card to the child and ask the child to name the figure. Hold the Random Dot E card next to the Stereo blank card about 20 inches from the child and ask the child which card has the "E." Child should be able to identify which card has the "E." Repeat the process at least three times, shuffling the cards behind the back between tests.
Pass:	Correct response three times in a row.
Fail:	Unable to correctly identify the "E" card at least three consecutive times. Rescreen on another occasion. If student fails, refer for professional examination.

Note: This screening for binocularity/stereoscopic vision is considered the single most important vision screening in children, as amblyopia is preventable if detected early enough. It must be found and treated before six to seven years of age to be corrected.

C. Color Discrimination

The ability to discriminate color needs to be determined only once. The most common red-green deficit is of low incidence, and found most often in boys (7 percent). It is not considered educationally significant. The test is difficult to perform accurately in a school setting because it is dependent on correct lighting conditions. Some vision testing machines will have a slide for color discrimination. Students who are identified with this condition need to be counseled regarding vocational opportunities.

D. Referral

All failures on a screening should be rescreened to confirm the need for further evaluation. There are a few obvious conditions that warrant immediate referral, but in most cases, the rescreening will eliminate some unnecessary referrals. Initial failure may be due to misunderstanding directions, misinterpretation of information, fatigue, or inability to attend to testing. Approximately 5-10 percent may need referral.

Referral criteria in this manual may be used, but it is important to get a consensus of the eye care professionals in the community on what they consider as need for further examination. After determining that the individual needs referral, the nurse should notify the parent/guardian in person or by telephone, when possible. This referral should be followed in writing, using a form that communicates the findings of the screening, as well as any additional observations made in the school setting. The form should request a written report from the eye care professional with results of the examination and any recommendations for the school setting.

The most useful form for a vision referral contains:

- notice to parent about a possible problem;
- any vision-related signs and symptoms noted;
- results of screening and rescreening;
- section for results of the professional exam;
- recommendations for the school; and
- release of information for provider to share results.

The school or community health nurse should be able to explain the results of the screening and the importance of a thorough follow-up examination to the parent/guardian, or student, as appropriate. Parents should request a complete eye examination when making the appointment to ensure that the student is not just rescreened. It is helpful to have information about eye care professional services available in the area, the average cost of a visit, and what to expect from the examination. Families of students who are in managed healthcare programs may need

to contact their health insurance plan for information on how to access the vision care services, including treatment, that are available to them.

When making a referral, the nurse should give the parent and/or student information about the types of eye care professionals capable of evaluating possible eye problems.

The following definitions might be utilized:

Optometrists and ophthalmologists are both eye care professionals who are responsible for the prevention, diagnosis, treatment, and management of disorders of the eye and visual system as well as for recognition of related systemic manifestations. These licensed eye care professionals can examine eyes, prescribe glasses, contact lenses, and medications when appropriate. In addition, ophthalmologists perform surgery to correct eye and vision problems.

E. Follow-Up

The school or community health nurse should develop a method of tracking the referrals made. It is not unreasonable to expect a response from the parent/guardian within a two-week period, notifying you that the parent/guardian understands the referral, and has made an appointment for an examination. The parent/guardian should be contacted periodically until the nurse knows the disposition of the referral. Many times, the parent/guardian is reluctant to say they cannot afford an eye exam. The nurse should be aware of community resources for those who need financial assistance.

F. Referral Resources

The school nurse's role is to identify whether there is a need for financial assistance for those students with incomplete referrals.

1. Medicaid/MC+ for Kids.

If a parent indicates there is a financial problem, the first step is to determine if the student is financially eligible for assistance through Medicaid or MC+ for Kids. MC+ for Kids is based on a national child health insurance program for uninsured children. This is a program for medical and dental insurance. Access to these programs is through the Family Support Division (FSD) of the Department of Social Services. Children eligible for free and reduced lunch programs usually meet the financial criteria. If the parent/guardian does not have a Medicaid card for the student and is interested in exploring their eligibility for Medicaid or MC+ for Kids, they should be referred to the county FSD office, call 1-877-543-7669, or log on to www.dss.mo.gov/mcplus. These programs will provide an eye exam every two years, and frames and lenses if needed. New lenses may be obtained on an annual basis if there is a medical necessity. Some schools have personnel who have been trained to facilitate an application for MC+ for Kids.

2. Prevention of Blindness Program

A resource available to all citizens in Missouri is the Prevention of Blindness Program (POB). This program is entirely funded by the State of Missouri, and all funds are expended through a coordinator in the state office. All individuals in the state who are legal residents, regardless of age, are provided eye care services when they meet the eligibility requirements. They include:

Financial - dependent on net monthly income, number of individuals in the household, cash, and resources other than the family residence. All income generated in the household is taken into consideration.

Visual - eligibility is based on a visual acuity of 20/200 or worse without correction in at least one eye, a progressive eye disease or a malformation or malfunction of the eye. Visual eligibility determination for the Prevention of Blindness program can be made after a report is filed in the POB office by an eye care professional who has completed an examination of the client. This examination is to determine the existence or non-existence of disease of the eye, to check for ocular muscle functions and to determine whether any other ocular problems exist.

The program provides for the purchase of the following:

- glasses
- artificial eyes

The program also assists with the cost of the following:

- low-vision evaluations
- routine and follow-up eye examinations
- surgery
- hospitalization
- anesthetic fees

Other services include:

- referrals to other agencies (public and private)
- counseling
- purchase of some medication

The Prevention of Blindness program accepts referrals from any source, utilizing a form that may be obtained from the county Family Support Division office. The nurse may need to assist the parent/guardian in completing the form to avoid unnecessary delays in getting approval for care.

3. Community-based Programs

a) Lions Clubs/Lenscrafters

In many communities, the Lions Club International provides assistance for vision problems. Some clubs sponsor community eye-screening programs and assistance for adults as well as children. Lions Clubs collaborate with the Lenscrafters Gift of Sight program. The Lions Club pre-selects the recipients of free vision care, and provides vouchers for the local Lenscrafters Hometown Day in which they provide the free care. If the local club does not have a formal program, they might be approached to give assistance in individual cases. The nurse has a responsibility to be an advocate for the school-age population and to communicate the need for a resource in the community.

b) Wal-Mart

Wal-Mart has established an assistance program for children with vision problems. Resources are extended to local school nurses, and are shared across school districts in their area. The program provides free, professional examinations and glasses, if needed. School nurses not using this program should approach their local Wal-Mart manager to see if their students needing vision care will be eligible.

c) National Association of School Nurses/Vision Service Plan

The National Association of School Nurses (NASN) collaborates with Vision Service Plan (VSP) Sight for Students program for low-income students not eligible for government programs. Members of NASN can obtain materials for providing up to 25 “gift certificates” for vision care. In exchange, they agree to ensure the child is financially eligible, assist the family with completing the application, and assure the family keeps the appointment.

d) Informal Community Resources

In addition to these resources, local School Health Advisory Councils often identify informal resources within the community by communicating the need for financial assistance for vision care. School nurses play an important role in collecting the data to identify the needs, and advocating for the development of resources.

G. Program Management

1. Scheduling

The school nurse is the appropriate person to manage a vision-screening program in the schools. This includes determining the best schedule for screening the selected population. This scheduling should be done in collaboration with the school administrator. Some administrators prefer screenings to be accomplished by a "health fair" format where all screenings are done in one day, with the help of community volunteers. Others prefer screening children by grade, on a schedule worked out with the teaching staff in regard to which classes will be pre-empted for screening. Classes where students receive overall instruction and then do individual work, such as in art, physical education class, or study hall lend themselves to screening.

2. Selection of Population

This selection may be set by school policy, although there is no state rule or regulation that mandates vision screening. Data from previous screening programs will provide information that will be useful in the selection of grades to be screened. If the referral completion rate is less than 75 percent, consideration should be given to screening fewer groups of students. It is important to identify reasons why referrals were not completed in order to address the reasons, i.e., parent inattention indicates a need for more education regarding the importance of good vision for school success, or lack of financial resources for care indicates the need for community awareness of this need of children, or advocacy for resources. If providers are not readily available, there may be a need for transportation resources to a nearby community.

If resources (time and personnel) are limited, the nurse should consider screening all students new to the school district, including kindergarteners, any referrals from parents and teachers, and special education evaluations. The next priority would be first grade and incomplete referrals from the previous year. It is not helpful to simply identify a problem, but there should be a comprehensive effort to obtain professional evaluations and corrections if needed**.** (If time and resources are adequate, follow the recommended schedule on page 2.)

3. Parent Notification

Many schools report the results of all screening tests, positive and negative. Students may tell the parents they had their "eyes checked," and parents appreciate knowing that no problems were found. Some school and community nurses screen vision during health fairs, and use a general form that reports the results of all screenings (see sample forms in Appendix B).

4. Documentation

The results of screening and rescreening should be recorded on the student's individual health record. Following professional examination, the findings and any recommendation should also be recorded on this record.

The most important component of a screening program is tracking the results of referrals to parents for a professional evaluation. Nurses should devise a system that identifies the outcome of all referrals. This information is useful in determining the appropriateness of referral criteria, the status of all referrals, and reasons for incomplete referrals. Use of tracking logs to capture this information will assist in evaluation.

5. Quality Assurance

The nurse is responsible for assuring quality in the vision screening program. These quality issues include:

- Volunteers trained appropriately, including confidentiality issues;
- Age-appropriate prescreening education provided;
- Age or developmentally appropriate method of screening selected;
- Eye chart presented under optimal conditions (overhead or natural lighting adequate, free from glare, area free of visual distractions, etc.);
- Eye chart positioned with 20/30 line at student's eye level;
- Student placement assures eyes are accurate distance from chart;
- Occluder used appropriately, with universal precautions if not disposable;
- If vision screening machine used, slides are clear, dust and smudge free, internal light bright, universal precautions in use with head rest; and
- Vision screening machine serviced as needed.

6. Evaluation

A form for internal program evaluation should contain data that is useful in conducting continuous quality improvement programs. Using this information to evaluate the usefulness of the screening program and what barriers exist to referral completion, allows the nurse to redesign the screening program, if indicated. If referrals are not completed due to lack of nursing time to facilitate the referral process, there should be consideration of reducing the numbers of students screened, with priority given to K-3, new students, and those at-risk for vision problems.

IV Screening Vision in Infants and Toddlers

A. Health and Developmental History Related to Vision

When assessing infants and toddlers, a thorough health and developmental history especially related to vision is important. Some indicators for potential vision problems are prematurity, family history of "lazy eye" or other visual problems. Infection and high fever may also lead to vision difficulties.

1. Normal Visual Development

Visual function develops in an orderly sequence as follows:

Neonate	Alert with widening of palpebral fissures to visual stimulation by an object or face presented 20 to 30 cm (6-12 inches) from the eyes. Makes momentary eye contact with an adult. Follows a visual stimulus in a horizontal arc 30 degrees on either side of the mid line. Turns head toward a diffused source of light. Blinks at a flashlight shone in the eyes.
1 month	Follows a visual stimulus in a horizontal arc 60 degrees on either side of the mid line. Follows a visual stimulus vertically 30 degrees above and below the horizontal meridian. Shows "looming" response - blinks at approaching object.
2 months	Tracks horizontally across midline. Follows a moving person 1.8m away. Makes prolonged eye contact with adult. Smiles in response to a smiling face.
3 months	Eyes and head follow smoothly through 180 degree arc. Regards own hands. Looks at objects placed in hand; initiation of visual-motor coordination.
4 to 5 months	Shows spontaneous social smile in response to familiar adult. Reaches on sight for a 2.5 cm (1 inch) cube presented 30.5 cm (12 inches) from the infant. Notices a raisin presented 30.5 cm (12 inches) from the infant.
5 to 6 months	Smiles at mirror image.
7 to 8 months	Picks up a raisin by raking.
8 to 9 months	Pays visual attention to details of objects, e.g., facial features of dolls, or poking at holes in pegboard.
9 months	Shows neat pincer grasp.
12-14 months	Gains skills in perceptual motor items, such as stacking blocks, using form board, or placing a peg in a round hole.

2. Signs of Potential Vision Problems

The following list of alerting signs and blindisms is a useful guide to identify infants in need of a referral to an eye specialist. *

a. Alerting signs suggesting referral to an eye specialist:

1) Failure to pass screening items, such as those listed in "Visual Development;" other developmental items at a similar level are passed;
2) Appearance of any strabismus (squint) after 2 months of age;
3) Wandering uncoordinated eye movements;
4) Nystagmus;
5) Holding items too close (within 6 inches) for visual inspection;
6) Cocking head habitually to look at items;
7) Turns head, then eyes, to look at people or object; and
8) Disregard of objects presented in peripheral field.

b. Blindisms (self-stimulating behaviors frequently observed in visually impaired children)

1) Prolonged handwatching past developmental age of 5 months (shadowing);
2) Staring at lights in preference to people or objects;
3) Poking at eyes;
4) Rubbing eyes;
5) Flicking finger (stimulus presented peripherally);
6) Rocking;
7) Spinning;
8) Banging head;
9) Smelling, sniffing, "rooting;" and
10) Prolonged mouthing of objects.

After the infancy period, obtain an initial history, or update previous history, including questions about illness, injury, and signs and symptoms of visual problems.

* *"Program Planning for the Visually Impaired Child," by Carol M. Donovan*
Knowledge of the sequence of normal visual development will alert the screener to "red flags" in history taking.

B. Gross Assessment of Vision

In infancy, testing of vision is usually based on visual fixation and following responses. These are tested by moving an object of visual interest in front of the child and watching to see whether the eyes turn toward the object and follow its movement back and forth in the visual field. The object of visual interest can be a face, a flashlight or a

brightly colored toy. Although adding sound to the test might theoretically compromise its purity as a visual stimulus, in practice, a light that rattles or a toy that squeaks is often more effective in gaining an infant's visual attention. The size of the object and its distance from the face are not critical, since one is not trying to measure quantitative visual acuity. Full-term, normal infants under ideal circumstances can fix and follow objects at birth, but such responses become more obvious to parents at six weeks to two months of age. If visual fixation and following are not present by four months of age, further eye examination is certainly indicated.

There are a number of screening tests that advocate the use of small objects such as cars, animals, etc., but none are standardized tests. Observing an infant or child's notice of such an object can indicate gross visual acuity. Tests such as the Denver II incorporate gross vision in the test where an infant is observed noticing and attempting to pick up a raisin.

The following pages contain specific guidelines for functional assessment of vision in infants and toddlers. Gross vision in children with severe development delays may be assessed using these same techniques.

FUNCTIONAL ASSESSMENT # 1

1. Red Reflex

Ages:	Birth to 3 years.
Purpose:	To observe for the red reflex in both eyes.
Description:	The demonstration of the red reflex indicates no interruption of the light pathways.
Facilities:	Normal or lowered light level in the room.
Equipment:	Penlight, flashlight or ophthalmoscope.
Procedure:	Move the light beam across the pupil. Observe from a distance of approximately 10 inches. An orange or red glow should reflect from the fundus through the pupil.
Pass:	If both pupils reflect the orange or red glow, it is considered normal.
Fail:	If a partial white or asymmetrical reflex is observed, the child should be referred. A partial red or black reflex may be abnormal, or due to misalignment of the light. Several conditions may prevent the red reflex, i.e., cataracts, tumors, retinal abnormalities, opacity of the cornea, retrolental fibroplasia, retinoblastoma or chorioretinitis. **A White Pupil Warrants Immediate Referral**

FUNCTIONAL ASSESSMENT # 2

2. Blink Reflex

Ages:	Birth to 1 year.
Purpose:	This test is to determine if the infant or child has visual function and responds to the movement of a hand toward their face.
Description:	With the blink reflex, blinking occurs automatically when a hand or any object moves toward the face.
Procedure:	Problems to avoid: Do not create a wind by moving the hand too quickly as the child may blink in response to the wind rather than the visual stimulus.
Pass:	The child blinks in response to the hand.
Fail:	Child does not blink in response to hand. Refer for evaluation.

FUNCTIONAL ASSESSMENT # 3

3. Pupillary Response

Ages:	Birth to 3 years.
Purpose:	To test the degree to which the pupils respond to light.
Description:	A pupillary response occurs when the pupil of the eye changes shape or size when the light is presented.
Facilities:	Normal or lowered light in room.
Equipment:	Bright penlight or flashlight.
Procedure:	Observe the condition of the pupil without stimulation. Remove glasses if the child is wearing them (for screener's benefit). Direct a penlight into the child's eyes from approximately 12-16 inches away and notice whether the pupils constrict or remain unaffected. If no response, use a brighter light source (flashlight) or turn off room lights to provide greater contrast.
Pass:	Both pupils should react by constricting when light is presented and dilating when light is removed.
Fail:	If one/both pupils do not respond as expected, or if one pupil is slower to respond than the other on two occasions. If repeat test is consistent, refer child for evaluation.

FUNCTIONAL ASSESSMENT # 4

4. Tracking

Ages:	4 months to 3 years. Informal assessment can be done as early as four months of age when the child should be developmentally able to fixate and follow an object. By 12 months of age, child should be able to follow an object with both his eyes horizontally and vertically, without moving or turning head.
Purpose:	To determine if an infant or child's eye muscles are working together.
Description:	Tracking is evidenced when a child follows a moving light or object with his or her eyes or head.
Equipment:	Penlight, flashlight or brightly colored object.
Procedure:	Hold light or object 14-16 inches from eye. Move the light or object horizontally 18 inches to the left from the center, then 18 inches to the right from the center. If the child does not follow at 14-16 inches, move closer. Screener may lightly hold child's head in place while testing. Move light vertically, about 18 inches above, then 18 inches below eye level. Move light in a circle, at least 2 feet in diameter. With each test, observe for full, smooth eye movements.
Pass:	Child follows light with eyes completely to right and left, and above and below.
Fail:	If a cooperative child does not visually follow an object in all directions with smooth eye movements, referral should be made for evaluation.

.

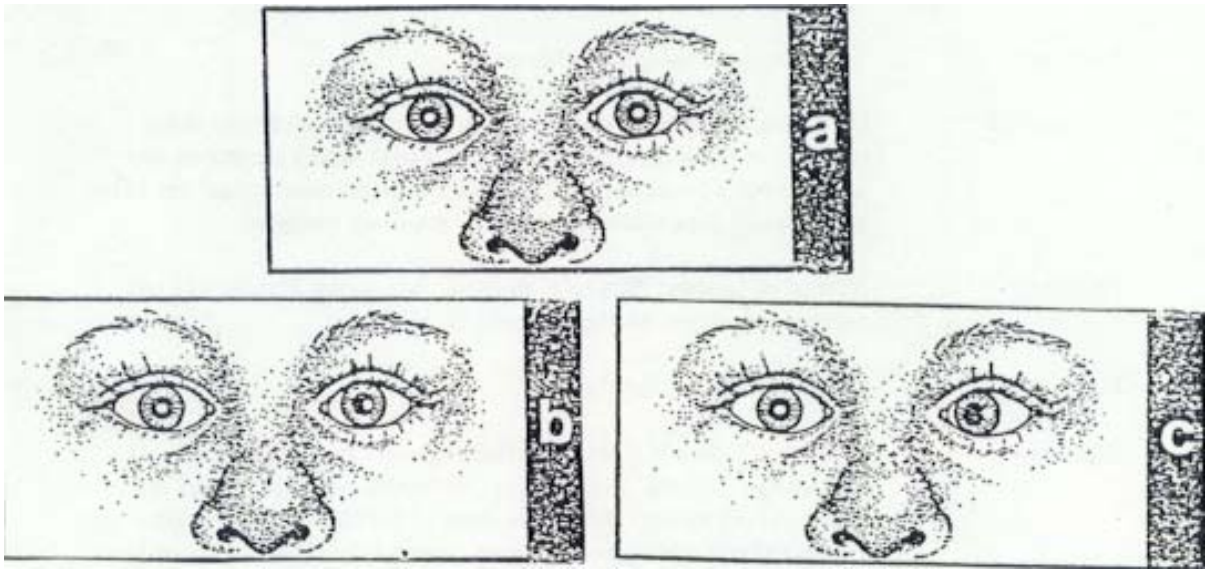
FUNCTIONAL ASSESSMENT # 5

5. Corneal Light Reflex (Hirschberg)

Ages:	6 months to 3 years.
Purpose:	To detect constant eye deviations.
Description:	By noting the similarity or dissimilarity in position of light being reflected in the pupils, the observer is able to detect a constant eye deviation of a lesser degree than possible in the observation test. This test is easily done while checking for pupillary reaction.
Facilities:	Normal or lowered light level in room. Minimum number of light sources (windows, overhead lights, etc.).
Equipment:	Bright penlight or flashlight.
Procedure:	Screen with glasses if child has them (glasses may already be correcting problem). Position the child so the penlight is held at arm's length (12-16 inches), directly in front of the child's eyes, and the light is directed at the bridge of the nose. Instruct the child to look toward the light. The screener observes the pupils for the position of the light reflex in each eye.
Pass:	The reflection of the penlight appears to be in a similar position in the pupil of each eye (see illustration).
Fail:	The reflection of the penlight does not appear to be in a similar position in the pupil of each eye (see illustration). If a repeat test is consistent, the child should be referred for evaluation. Even a slight difference may indicate the presence of strabismus.

FUNCTIONAL ASSESSMENT # 5

5. Corneal Light Reflex (Hirschberg) continued



The position of the light on the cornea or pupil may be used to detect strabismus.

a. Since light reflexes are symmetrical in both eyes, no strabismus is present.

b. An esotropia exists in the left eye since it is turned inward. The light reflex is on the outer half of the right pupil.

c. An exaggeration of the degree of esotropia in the left eye is shown by the farther position of the light reflex.

This test is useful in detecting pseudostrabismus where epicanthal folds may give a child the appearance of crossed eyes.

APPENDIX A

SCREENING STUDENTS FOR DUAL SENSORY LOSS

SCREENING STUDENTS FOR DUAL SENSORY LOSS

Students who are born deaf, or have a profound hearing loss should be screened for the possibility of a genetic disorder, Usher Syndrome. This condition is of very low incidence, but the student with Usher Syndrome develops retinitis pigmentosa (RP), usually in adolescence. RP is a condition that results in progressive loss of vision and ultimately, total blindness. It is important to identify these students as soon as possible in order to prepare them for the future. Deaf students may function well using sign language or lip reading, but when they lose their vision, they must have other means of communication. Students identified with Usher Syndrome are often referred to special centers where they learn communication skills and mobility before they totally become blind.

The first screening is done by completing a screening check list on any student who has a history of congenital deafness or has a significant hearing loss. This will rule out more than 99 percent of the students who should be screened further for vestibular dysfunction, or balance, dark adaptation, and loss of peripheral vision (see page 33).

Testing for balance

Screening for balance is easy to do. Ask the student to stand with feet together, arms outstretched to the side, and then close their eyes. In this position, younger students may have problems maintaining balance, but older students may only wobble a little.

Next, ask the student to stand with the heel of one foot immediately in front of the other foot, with arms outstretched. They may have some problem with their eyes open, but when asked to close their eyes, they will fall over immediately. It is important to support the sides of their torso until they get their balance, and be ready to catch them if they fall.

If the student fails the balance test, parents should be contacted to get further history and to ask questions about their observations of the student's balance and vision. Look particularly for signs of night blindness. The student may have excellent central visual acuity in well-lighted conditions, but have difficulty in dim light, twilight, or at night.

Testing for dark adaptation

Put some red, white, and blue objects (poker chips work well) in a jumbled heap on a dark table or carpet. Ask several students to participate. Turn out the lights, leaving just a tiny amount of light in the room. Ask the students to pick up a white object and note how long it takes each one to do it. Next, ask one student to sort the red and blue objects. After the first one completes the task, mix them up again and ask the next student to sort them. Use yourself as a comparison, but be aware that older people may have a longer adaptation time.

Some students with RP may not show any clinical signs of vision loss at night or during the day until mid-adolescence, so night vision should be checked periodically.

Testing visual fields

In students over age eight, test for visual fields. In the early stages of cone dysfunction (a result of retinitis pigmentosa), students can see well at the extreme periphery but then lose sight of the object closer in while maintaining normal vision centrally. Face the student, asking him/her to keep looking at your nose. Hold your hands out at 3 and 9 o'clock, then at 6 and 12 o'clock and in between these two positions. Keep your arms completely still and wiggle just the fingers on one or the other hand, varying the side in an unpredictable pattern. Ask the student to point to the one which is wiggling. If the student is unable to see the wiggling fingers, he may be losing peripheral vision.

Referral

Students who meet the referral criteria should be referred to a pediatric ophthalmologist or retinal specialist. The provider should be given any history that indicates the possibility of Usher Syndrome, results of observations, balance testing, dark adaptation, and visual fields.

If a student is identified as having Usher Syndrome, please call the Missouri Deafblind Project (see page 32 for a description of services).

When Hearing Loss and Retinitis Pigmentosa Happen Together
Meeting Educational Needs

What is Usher Syndrome?

Usher Syndrome is a genetic disorder involving the loss of both sight and hearing. Hearing loss occurs at birth or shortly thereafter. A progressive loss of vision due to retinitis pigmentosa (degeneration of the eye's retinas) begins later in life, but usually before adolescence. There is no way of knowing the time of onset or rapidity of vision loss, but in almost all cases the result is legal blindness.

A person with Usher Syndrome has inherited the Usher gene from both parents. Usher Syndrome is an autosomal recessive gene, and both parents must pass the gene to their child in order for the child to have the condition. When both parents have the gene, the chances each child will have Usher Syndrome is one in four. While only approximately 3 per 100,000 people will have Usher Syndrome, it is estimated that 3-6 percent of people who are congenitally deaf have the condition. Usher Syndrome accounts for over 50 percent of all cases of deaf-blindness, with approximately 10,000 known cases in the United States. In the general population, anywhere from 1 in 100 to 1 in 300 carry the Usher gene.

The two major types of Usher Syndrome are Type I and II. The most common is Type I (almost 90 percent of all Usher), and is deafness with retinitis pigmentosa (RP) symptoms before adolescence. In Type II (almost 10 percent), moderate to severe congenital hearing loss is paired with RP symptoms after adolescence.

Why is it important to diagnose Usher Syndrome as soon as possible?

Identifying Usher Syndrome as early as possible is important because:

1) The gradual decrease in vision may go unnoticed by an individual who may continue activities, e.g., driving or working in hazardous conditions that cannot be safely done anymore.
2) The individual, parents, and teachers can plan for educational and vocational experiences and guidance that take into account the eventual visual difficulties. Resources are available for experiences such as mobility training, use of Braille, and tactual communication.
3) A diagnosis of Usher Syndrome in an older child allows parents to consider genetic counseling. Persons who have Usher Syndrome may also want to consider genetic counseling.

How is an individual identified as having Usher Syndrome?

Several tests are used to determine whether a person has retinitis pigmentosa, and that is how a person who has a hearing loss is identified as having Usher Syndrome. These tests include a visual field test to assess peripheral vision, testing to evaluate color vision and dark adaptation. However, the definitive test of retinitis pigmentosa is electroretinography (ERG) which has been found to be 95 percent accurate. ERG is the measurement of the electricity given off by nerve impulses in the retina. This painless test is done by having the patient wear special contact lenses while looking at flashing lights.

Provided by the Missouri Department Deafblind Project in cooperation with the Missouri School for the Blind, and the Missouri School for the Deaf.

Missouri Deafblind Project

Purpose

The purpose of the Missouri Deafblind Project is to develop partnerships, coordinate service networking, and provide systematic training. Technical assistance, training, and resources are available for the students identified as deaf and blind on the Missouri Deafblind Census, their families, and service providers. Leadership and support is provided by the Missouri School for the Blind Outreach Team. Services are coordinated with local education agencies, adult service providers, and deafblind task forces to enhance networking and to build expertise in the community.

Services

- On-site technical assistance and consultation from the outreach team;
- Inservice training on specific content areas;
- Active state and local deafblind task forces;
- Transition assistance including personal futures planning;
- Missouri Deafblind Census;
- Parent training including a home program for children, birth through five years;
- Family workshops including Family Learning Vacation and Families Together, Inc.;
- Early childhood training, such as VIISA and INSITE workshops;
- Deafblind coursework, such as Hand-in-Hand;
- Mentor Program;
- Usher screening resources;
- Loan library of resources on effective practices; and
- Deafblind newsletter.

All services are free.

For additional information regarding the Missouri Deafblind Project contact:

Director, Outreach Services
Missouri School for the Blind
3815 Magnolia Avenue
St. Louis MO 63110
314-776-4320, ext. 250

USHER Screening Check List

Name_____Birthdate_____Date_____

GENERAL QUESTIONS	Yes (stop)	No (go on)	?
1. Are multiple organ systems affected?			
2. Does a family history of deafness exist, with multiple generations affected?			
3. Is the individual mentally retarded?			
HEARING QUESTIONS	**Yes**	**No**	**?**
4a. Is the individual hard of hearing?	screen	go on	
4b. Is the individual prelingually deaf?	test	stop	
5. Is the audiogram *atypical* of Usher Syndrome?			
BALANCE QUESTIONS	**Yes**	**No**	**?**
6. Is tested balance abnormal in deaf individual?	screen	stop	
7. Was individual late to walk (>15 months)			
8. Is Individual considered clumsy?			
9. Does individual lose balance easily in dark?			
VISION QUESTIONS	**Yes**	**No**	**?**
10. Is there a history of night blindness?	refer	go on	
11. Abnormal dark adaptation test?	refer	go on	
12. Abnormal confrontational visual fields?	refer	go on	
13. Other concerns about vision?	refer	recheck*	

*Recheck later means to gather more history, enlisting parents and teachers to complete expanded questionnaires, do more observations and/or repeat the testing next year. If the ? column is checked, the screening should be repeated mid-year. It is better to err on the side of overreferral than underreferrral.

APPENDIX B -- SAMPLE FORMS

REPORT TO PARENTS

Your child, _____, has participated in the Vision Screening Program in our school on _____, of this year. At this time he has no apparent visual problems. As your child grows and develops, this ability to see may change.

Please contact us if you have questions about your child's vision.

School Administrator

REPORT TO PARENTS

Your child, _____, has participated in the Vision Screening Program in our school on _____, of this year. At this time he has no apparent visual problems. As your child grows and develops, this ability to see may change.

Please contact us if you have questions about your child's vision.

School Administrator

NAME_____DATE_____

GRADE_____TEACHER_____

SCHOOL_____

HEALTH EDUCATION

_____

SCOLIOSIS SCREENING

___PASS

___WILL RECHECK AT SCHOOL

___REFER

HEIGHT_____INCHES

WEIGHT___POUNDS

BMI_____PERCENT

Rechecks, where indicated, will be done at school in the next few weeks.

The dental screening is NOT intended to take the place of an annual visit to the dentist.

If you have any questions, contact the nurse in your child's school.

BLOOD PRESSURE

___/___

HEARING

L. PASS
RECHECK

R PASS
RECHECK

VISION

PASS

RECHECK

DENTAL

_____RECOMMEND MORE FREQUENT BRUSHING

_____EVIDENCE OF DECAY

_____RECOMMEND ORTHODONTIC CONSULTATION

_____PASS

_____REFER

NAME_____DATE_____

GRADE_____TEACHER_____

SCHOOL_____

HEALTH EDUCATION

_____

SCOLIOSIS SCREENING

___PASS

___WILL RECHECK AT SCHOOL

___REFER

HEIGHT_____INCHES

WEIGHT___POUNDS

BMI_____PERCENT

Rechecks, where indicated, will be done at school in the next few weeks.

The dental screening is NOT intended to take the place of an annual visit to the dentist.

If you have any questions, contact the nurse in your child's school.

BLOOD PRESSURE

___/___

HEARING

L. PASS
RECHECK

R PASS
RECHECK

VISION

PASS

RECHECK

DENTAL

_____RECOMMEND MORE FREQUENT BRUSHING

_____EVIDENCE OF DECAY

_____RECOMMEND ORTHODONTIC CONSULTATION

_____PASS

_____REFER

(School or Health Services letterhead)

SCHOOL	BUILDING	ROOM NUMBER

STUDENT INFORMATION

STUDENT NAME	AGE	GRADE

PARENT NAME	ADDRESS (INCLUDING CITY, STATE & ZIP)

Your child has participated in the vision screening program in our school this year, on _____.

_____ Findings indicate a possible problem.

_____ It is recommended that your child be evaluated by an eye care professional (ophthalmologist or optometrist).

If you have questions, please contact _____ / _____
School Nurse Phone

OBSERVATIONS – Check all that apply.

APPEARANCE		**BEHAVIOR**		**COMPLAINTS**	
Red Eyes		Blinking		Can't See Blackboard (distance)	
Granulated Lids		Watering Eyes		Print Blurs	
Sties		Sensitive to Light		Double Vision	
Discharge		Rub Eyes		Headache	
Swelling About Eyes		Excessive Frowning		Nausea	
Head Tilt		Irritability When Using Eyes		Dizziness	
Droopy Lids		Squints or Squeezes Lids to See		Itching, Smarting, Burning	
Eyes Out of Line (cast)		Holds Book Very Close			
		Dislikes Games Requiring Distant Vision (baseball, etc.)			
		Stumbles and Trips Over Small Objects			

RESULT OF SCREENING (Specify type of screening test)

A. SCREENING DATE

Binocularity Test: P ☐ F ☐ Not Done ☐

	BOTH	**RIGHT**	**LEFT**
WITHOUT GLASSES	20	20	20
WITH GLASSES	20	20	20

OBSERVATIONS

B. RESCREENING DATE

	BOTH	**RIGHT**	**LEFT**
WITHOUT GLASSES	20	20	20
WITH GLASSES	20	20	20

OBSERVATIONS

(Continued on back)

REPORT OF EYE EXAMINATION – EXAMINER/PHYSICIAN: PLEASE COMPLETE AND HAND ENTIRE SHEET TO PARENT TO **RETURN TO NURSE, OR MAIL DIRECTLY TO NURSE AT THE BELOW ADDRESS.**

1) Best Visual Acuity R 20/ L 20/ with glasses/contact lenses
   R 20/ L 20/ without glasses/contact lenses
2) Muscle Balance/Stereopsis:____ Normal ____ Abnormal _____
3) Diagnosis: _____
4) If glasses/contacts are indicated, should the student wear them:
   all the time _____for close work only_____, for distance only _____
   in games/sports ____ protective eyewear ____
5) Other recommendations (Examples: special seating, sight-saving textbooks, etc. Should child return for professional care and how soon.

EXAMINER'S SIGNATURE AND DEGREE	EXAMINATION DATE

ADDRESS OF EXAMINER (INCLUDING CITY, STATE AND ZIP)

SCHOOL NURSE: PLEASE COMPLETE THE FOLLOWING:

SCHOOL NURSE'S NAME	SCHOOL NAME

SCHOOL NURSE'S ADDRESS (INCLUDING CITY, STATE AND ZIP)	PHONE NUMBER (INCLUDE AREA CODE)

RELEASE OF INFORMATION FORM

To the physician:

Please provide the school nurse named above with the results of this evaluation in order to inform the nurse of your findings and any necessary accommodations or monitoring needed.

Signature of Parent/Guardian _____ Date _____

REFERRAL TRACKING FORM

VISION SCREENING

STUDENT	GRADE/ ROOM	RESCREEN DATE	RESULTS	REFERRAL DATE	COMMENTS

REFERRAL TRACKING FORM

VISION SCREENING			RESULTS OF PROFESSIONAL EXAM				
STUDENT	ROOM/ GRADE	DATE/TYPE REFERRAL	NORMAL VISION	OBSERVE	RE-EVAL DATE	CORRECTION PRESCRIBED	COMMENTS

SAMPLE: Statistical Report
(Internal Use)

School Year _____

Building Summary Report _____
District Summary Report _____

Building/District _____ Form completed by _____ Date _____

					RESULTS OF PROFESSIONAL EXAMINATION OF REFERRED STUDENTS				
	SCREENED		RE-SCREENED						
Grade	Total Number of Students	No Problem Found	No Referral At This Time	Referred For Professional Examination	Normal (No Abnormality)	Correction	Classroom Adaption		Comments
							Yes	No	
K									
1									
3									
5									
7									
9									
11									
Special Edu.									
TOTAL									

APPENDIX C -- RESOURCES

RESOURCES

Numerous companies market vision testing equipment. Possible sources for charts, card tests, and vision testing equipment include:

Wilson Ophthalmic Corporation	1-800-222-2020 for catalog and current prices
Bernell (sole source for Broken Wheel)	1-800-348-2225
Lighthouse Products	1-800-453-4923
Good-Lite Company	1-800-562-5200
School Health Supply	1-800-323-1305
McGill School Health Catalog	1-800-323-2841
Stereo Optical Company (source for Random Dot E)	1-800-344-9500

WEBSITES

Professional information regarding screening programs:

http://cpmcnet.columbia.net/texts/gcps/gcps0043.html
www.nasn.org/briefs/visionhtm
www.aea11.k12.ia.us/nurseweb/vision/htm

Information for parents and students:

www.kidshealth.org
Click on “Body,” then “eyes”
www.children-special-needs.org

At risk students:

www.sightsavers.org (low vision students)
www.kidsource.com/NICHCY/visual.html
www.specialchildren.about.com/cs/visual
www.comeunity.com/disability/vision

ABC CHECKLIST FOR VISION

NAME _____GRADE_____ DATE_____

SCHOOL_____ TEACHER_____

OBSERVATION AND HISTORY

Please check appropriate items and return to the school nurse for review and determination of action to be taken.

APPEARANCE - do eyes look normal?

_____ eyes turn in or out
_____ crusty or red eyelids
_____ different sizes - pupils or eyes
_____ swelling of eyelids
_____ conjunctivitis (pink eye)
_____ drooping lids
_____ other _____

BEHAVIOR - teacher or parent observation

_____ tilts head, covers or closes one eye for critical seeing
_____ difficulty in keeping place while reading - a “finger” reader
_____ disinterested in activities involving critical seeing
_____ excessive stumbling, awkwardness or daydreaming
_____ holds printed materials in unusual position
_____ other_____

COMPLAINTS - student’s statements

_____ eyes hurt or blur while reading
_____ headaches when reading
_____ words move or jump about when reading
_____ double vision
_____ eye problems following blow to head
_____ can’t see the chalkboard
_____ other _____

(For teacher information)

Signs or Symptoms of Eye Problems

School personnel should be provided with a list of symptoms and student complaints that might indicate a vision problem, as a basis for referral for screening.

A. Appearance of Eyes
- one eye turns in or out at any time
- reddened eyes or lids
- eyes tear excessively
- encrusted eyelids
- frequent styes or swollen lids
- drooping lids
-

B. Behavioral Signs of Vision Problems

1) Eye Movement Abilities (Ocular Motility)
   - head turns as student reads across page
   - loses place often during reading
   - needs finger or marker to keep place
   - displays short attention span in reading or copying
   - too frequently omits words
   - repeatedly omits small words
   - writes up or down hill on paper
   - rereads or skips lines unknowingly
   - orients drawings poorly on page

2) Eye Teaming Abilities (Binocularity/Stereoscopic Vision)
   - complains of seeing double (diplopia)
   - repeats letters within words
   - omits letters, numbers or phrases
   - misaligns digits in number columns
   - squints, closes or covers one eye
   - tilts head extremely while working at desk
   - consistently shows gross postural deviations at desk activities

3) Eye-Hand Coordination Abilities
   - must feel things to assist in any interpretation required
   - eyes not used to "steer" hand movements (extreme lack of orientation, placement of words or drawings on page)
   - writes crookedly, poorly spaced; cannot stay on ruled lines
   - misaligns both horizontal and vertical series of numbers
   - uses hands or fingers to keep place on page
   - uses other hand or fingers to keep place on page
   - uses other hand as "spacer" to control spacing and alignment on page
   - repeatedly confuses left-right directions

(over)

4) Visual Form Perception (visual comparison, visual imagery, visualization)
   - mistakes words with same or similar beginnings
   - fails to recognize same word in next sentence
   - reverses letters and/or words in writing and copying
   - confuses same word in same sentence
   - repeatedly confuses similar beginnings and endings of words
   - fails to visualize what is read either silently or orally
   - whispers to self for reinforcement while reading silently

5) Refractive status (nearsightedness, farsightedness, focus problems, etc.)
   - comprehension reduces as reading continues; loses interest too quickly
   - mispronounces similar words as reading continues
   - blinks excessively at desk tasks and/or reading, not elsewhere
   - holds book too closely; face too close to desk surface
   - avoids all possible near-centered tasks
   - complains of discomfort in tasks that demand visual interpretation
   - closes or covers one eye when reading or doing desk work
   - makes errors in copying from chalkboard to paper on desk
   - makes errors in copying from reference book to notebook
   - squints to see chalkboard or requests to move nearer
   - rubs eyes during or after short periods of visual activity
   - fatigues easily; blinks to make chalkboard clear up after desk tasks

This list was excerpted from “Learning Related Visual Problems,” ERIC Clearinghouse on Handicapped and Gifted Children, 1920 Association Drive, Reston, VA.

If a student exhibits any of the above symptoms over a period of time, refer the student even if all other vision screening procedures are normal.

MISSOURI DEPARTMENT OF HEALTH AND SENIOR SERVICES

DIVISION OF COMMUNITY HEALTH
Section for Community Health Systems and Support
Healthy Communities and Schools Unit

PO Box 570
Jefferson City, MO 65102-0570
(573) 751-6213